they resemble those of albopictus. It should be noted that Barraud's figures of flavopictus (Fauna of British India 5 (Culicidae): 236. 1934) do not coincide with those of Yamada.

The species is named for Maj. W. G. Downs, MC, AUS, acting island epidemiologist on Okinawa, in appreciation of his contribution of specimens and other services.

ENTOMOLOGY.—The genera of beetles of the family Bruchidae in America north of Mexico.<sup>1</sup> J. C. Bridwell. (Communicated by W. L. Schmitt.)

The first species of Bruchidae from our area was described in the printed inaugural dissertation, or graduation thesis, of Michael A. Baeckner presented to the faculty of Upsala under the presidency of Linnaeus and defended on December 18, 1752. In this dissertation, Noxa insectorum, the pea Bruchus and the oriental species now known as Callosobruchus chinensis were described in the new genus Bruchus, there used for the first time as a generic name in zoology. They are the first species of Bruchidae described.

Names prior to 1758 are not available, and it is our great misfortune that, in his tenth edition, Linnaeus did not adopt the name Bruchus as he later did but treated the pea weevil in his genus Dermestes, and that his citation of the name Bruchus americae septentrionalis as published by Peter Kalm, 1756, has been ruled as offering no availability of the name Bruchus. In Opinion 5 of the International Commission of Zoological Nomenclature names prior to 1758 which are cited in synonymy in 1758 or later are not thereby made available for use. The writer hopes that an arbitrary ruling by the Commission may make an exception in this particular case so as to avoid the great confusion resulting from long use of the homonym Mylabris Fabricius, 1775, for the very large group of blister beetles and the relatively recent readoption of Mylabris Geoffroy, 1762, for the seed weevils. Such a ruling offers the only solution to the problems arising from the same generic name having been extensively used for more than a thousand species nearly equally applied to small weevils and to large blister beetles, but the problems are even more involved. Unless Bruchus can be validated as of 1758, this same name as applied by Geoffroy, 1762, is to be adopted

To the pea Bruchus, which we now know to have been introduced into America, other members of the family have since been added so that now nearly 90 species of described bruchids are known to be native to our area or have become established in it by the operations of commerce. Besides these named species about half as many unnamed species have been recognized in collections by L. J. Bottimer or myself. Before undertaking to describe the novelties it has seemed desirable for the writer to distinguish the groups which he has come to recognize during more than 25 years' study of Bruchidae. The present paper is intended to make known the groups of Bruchidae in America, north of Mexico, whether native or introduced, which he believes should be considered genera.

The most recent revision of the Bruchidae of the entire world was published by Schoenherr in 1839, and there has been but little advance in the broader classification of these insects since that time. The arrangement of the species found in the United States and Canada as listed in the Leng Catalogue is based upon the revision of our species by Horn 1873 but *Mylabris* 

for the genus we have known under the subsequent name Ptinus. This would increase the number of specific names involved by more than 300. The substitution of Mylabris for Bruchus and of Bruchus for Ptinus, as proposed about 75 years ago to conform with the law of priority, has not become effective. The above suggestion to invoke the plenary power to suspend the rules and arbitrarily validate Bruchus Linnaeus as of 1758 appears to be the only solution. Its effect would be to maintain Bruchus and Ptinus as they have long been commonly used and to eliminate Mylabris from use even for the meloid genus. The older entomologists knew and disregarded the basis of this confusion.

<sup>&</sup>lt;sup>1</sup> Received December 11, 1945.

Geoffroy is substituted for Bruchus Linnaeus. Twenty-nine valid and available generic names with their genotypes were arranged in five subfamilies by the writer in 1932 (Proc. Ent. Soc. Washington 34: 100–106). Two additional generic names, Sulcobruchus Chujo, 1937, and Specularius Bridwell, 1938, have since become available, but these 31 genera are inadequate for the various forms now known in this family. Ten of these named genera occur in our area.

Two of the five subfamilies recognized by the writer in 1932 consist of single genera. The Eubaptinae consist of a single South American species. The Kytorhininae include only the genus *Kytorhinus*. The Pachymerinae were treated by the writer in 1929 (Proc. Ent. Soc. Washington 31: 141–160) and the genera of Amblycerinae are

herein distinguished.

The fifth subfamily, Bruchinae, includes more genera and species than all the others together, but the genera are not easily arranged into groups. Bruchus in the Old World and Megacerus in America are so different from the other genera as to warrant the erection for them of the monobasic tribes Bruchini and Megacerini. The Old World genera, of which Bruchidius is the center, seem to be of common descent separately from the American genera centering in Acanthoscelides. It seems advisable to assemble Bruchidius Schilsky, Bruchinus Schilsky, Callosobruchus Pic, Specularius Bridwell, 1938 (genotype, Specularius erythrinae Bridwell, 1938 = Bruchus impressithorax Pic, 1932), and Sulcobruchus Chujo into a tribe Bruchidiini. Caryedes Hummel, Impressobruchus Pic, Pygiopachymerus Pic, Falsobruchus Pic, Gibbobruchus Pic, Phelomerus Pic, Cosmobruchus Bridwell, Dahlibruchus Bridwell, and Rhipibruchus Bridwell may be included with Acanthoscelides in a tribe Acanthoscelidini. It is premature to attempt a diagnosis of Bruchidini or Acanthoscelidini. Both tribes have the prothorax conical or sometimes campanulate. An impressed line parallel to the lateral margin of the pronotum, such as is found in the Pachymerinae, is more often found in the Acanthoscelidini. In the latter the hind femur usually bears an armature of teeth

and denticles, and the hind tibia is armed at apex with a mucro and a lateral apical tooth with two to five subdorsal apical denticles. Aedeagal distinctions between these two tribes also exist. Accepting for the present a tribe Acanthoscelidini for the American Bruchinae, with conical pronotum, we find two series extremely unlike if extremes be taken, but the intergradent forms cannot be very easily separated. The key here given is designed to establish new genera and to distinguish all the genera native to or accidentally established in America north of Mexico. All of them are believed to be natural groups.

## KEY TO THE GENERA OF BRUCHIDAE IN THE UNITED STATES AND CANADA

(Linnaeus, 1763)

Hind tibia with fixed spines or teeth at apex or unarmed; hind coxa not twice as broad as the femur.....4

Eyes strongly emarginate, elytra subquadrate; tenth stria abbreviate, only half as long as elytron; front coxae not separated by the prosternal process; calcaria shorter, subequal......Zabrotes Horn, 1885

- Pygidium and preceding tergite fully sclerotized and exposed behind the elytra; mesepimeron not strongly narrowed basally reaching the coxal cavity; antennae serrate in female, flabellate in male (Kytorhininae); Alaska, Alberta. Kytorhinus Fischer von Waldheim, 1809, K. prolixus (Fall, 1926).
- 5. Prothorax without a median tooth on lateral margin, front carinate or with a glabrous line or area; male without specialized spine, teeth or lamella at apex of middle tibia...6

7. Hind femur not dentate on both inner and outer edges beneath near apex, if emarginate and subdentate on outer edge then dorsum and flank of prothorax separated by a distinct arcuate lateral carina (Acanthoscelidini and Sparteus, Bruchidiini)..8

8. Antennae not extraordinarily long......9
Antennae of male longer than the body, reaching beyond the hind coxa in female; striae 2-4 arising from a bituberculate elevation at base of elytra; hind femur not as broad as coxa, armed beneath near apex with three similar denticles; hind tibia armed with a long slender mucro half as long as the tibia; pygidium elongate, oblique in female, more convex and vertical in male; hind femur not reaching apex of abdomen in female, extending beyond it in male....Stylantheus, n. gen.; genotype S. macrocerus (Horn) (Bruchus macrocerus Horn, 1873)

 11. Fourth stria of elytron abbreviate at base starting from a small tubercle; hind femur with inner edge beneath serrulate with a strong tooth beyond the serrulations and after a space with about four denticles.

Meibomeus n. gen.; genotype M. musculus (Say) (Bruchus musculus Say, 1831)

Fourth stria not abbreviate at base; femoral denticles approximate to the tooth.....12

12. Hind femur broader than the coxa, subsulcate beneath armed beneath within near apex with a strong tooth and 3 or 4 denticles; scutellum transverse; some of the striae arising from basal dentiform elevations; last sternite emarginate in both sexes...

Merobruchus, n. gen.; genotype M. julianus (Horn) (Bruchus julianus Horn, 1894)

14. Scutellum transverse; mucro short; front with glabrous area expanded toward vertex; hind femur profoundly channeled beneath in male.. Mimosestes, n. gen.; genotype M. sallaei (Sharp) (Bruchus sallaei Sharp, 1885)

Scutellum twice as long as broad; mucro elongate, frontal glabrous line not expanded toward vertex; hind femur alike in the sexes not profoundly channeled beneath..

Algarobius, n. gen.; genotype A. prosopis (LeConte)<sup>2</sup> (Bruchus prosopis LeConte, 1858)

15. Sides of pronotum convex, surface of dorsum even; depth of body less than width....16

Sides of pronotum concave, dorsum uneven; front strongly carinate; depth of body about as great as width; elytral striae 5 and 6 abbreviated at apex; pygidium elongate, convex, oblique. Neltumius, n. gen.; genotype N. arizonensis (Schaeffer) (Bruchus arizonensis Schaeffer, 1904)

<sup>2</sup> This species includes also *Bruchus uniformis* and *desertorum* LeConte 1858.

17. Lateral carina of pronotum simple, in an even curve, not denticulate; pygidium unlike in the sexes; hind femur alike in the sexes, flattened beneath, both edges carinate, the outer more prominent, emarginate before the apical lamella, the inner with a strong suberect tooth near apex; front with a glabrous line not expanded above, or subcarinate; antennae alike in the sexes, not serrate; hind tibia with mucro much longer than lateral apical tooth..... Stator, n. gen.; genotype S. pruininus (Horn) (Bruchus pruininus Horn, 1873) Lateral carina abruptly bent downward to the coxa with a few denticulations before the middle; pygidium alike in the sexes; hind femur with inner edge carinate,

emarginate near apex and produced into a broad flat tooth before the emargination, with a deep pubescent sulcus at base in male; front with a glabrous area expanded above to vertex; antennae serrate, larger in male; hind tibia with lateral apical tooth longer than the mucro. Cercidiestes, n. gen.; genotype C. ulkei (Horn) (Bruchus ulkei Horn, 1873)

18. Hind femur beneath near apex with a distinct

19. Hind femur beneath not at all carinate on either margin, inner margin with a strong obliquely truncate spine often tridenticulate on the truncation. Althaeus, n. gen.; genotype A. hibisci (Olivier) (Bruchus hibisci Olivier, 1795)

Hind femur beneath with inner margin carinate, the carina extending nearly to base, microserrulate before the simple spine Sennius, n. gen.; genotype S. cruentatus (Horn) (Bruchus cruentatus Horn, 1873)

20. Elytra with striae 4 and 5 abbreviate at apex; inner margin of hind femur beneath carinate with an apical emargination and a minute denticle or angulation before it... Sparteus, n. gen.; genotype S. villosus (Fabricius) (Bruchus villosus Fabricius, 1792)

Elytra with striae 5 and 6 abbreviate at apex, hind femora entirely without carinae or denticles beneath. Abutiloneus idoneus, n. gen. and new sp. (Bruchus flavicornis Schaeffer, 1907, and perhaps Sharp, 1885; not Bruchus flavicornis Fabricius, 1792)

Abutiloneus idoneus is a small species 1.6 to 1.8 mm long by 1.0 to 1.1 mm wide, densely clothed with pale yellowish to silvery pubescence almost concealing the black integument, the antennae and legs uniformly clear lemon-yellow. Several lots

of specimens with the following data have been examined: San Diego, Tex., E. A. Schwarz, May 4-7, probably 1879, 9 specimens; Corpus Christi, Tex., F. C. Pratt, April 12, 1906, one specimen; Brownsville, Tex., L. J. Bottimer, one specimen extracted from a seed of Abutilon berlandieri collected by H. C. Hanson, probably in 1919; Brownsville, Tex., reared by the writer in 1921 from Abutilon, 37 specimens: Guerrero, Coahuila, L. J. Bottimer, December 30, 1924, to February 15, 1925, reared from seeds to Abutilon berlandieri, collected December 9, 1924, 19 specimens; Brownsville, Tex., Bibby and Higdon, December 12, 1939, from Abutilon berlandieri, 6 specimens; Brownsville, Tex., I. Shiller, April 1941, with seeds of Abutilon lignosum, 33 specimens; Reynosa, Mexico, through A. J. Chapman, April 3-11, 1941, Abutilon lignosum, 12 specimens.

Type locality.—Brownsville, Tex.

Type and 97 paratypes.—U.S.N.M. no. 57766. Twenty paratypes in collection of L. J. Bottimer.

## EXCLUDED GENERA

North American Bruchidae have been placed in 19 genera; 10 of these genonyms are believed not applicable to any of our species, for reasons indicated with each name.

(1) Curculio Linnaeus, 1758, genotype B. nucum Linnaeus, designated by Latreille, 1810. Type genus of Curculionidae.

(2) Dermestes Linnaeus, 1758, genotype D. lardarius Linnaeus, designated by Latreille, 1810. Type genus of Dermestidae.

(3) Mylabris Geoffroy, 1762, genotype Bruchus pisi Linnaeus, 1767, designated by Bridwell, 1932. I have considered this a synonym of Bruchus Linnaeus, 1758. See introductory discussion of Bruchus.

(4) Laria Scopoli, 1763, genotype Laria dulcamarae Scopoli, designated by Bridwell, 1932, accepted by Barber, 1942 (U. S. Dept. Agr. Misc. Bull. 468, p. 9) (Pria Stephens, 1829, genotype Pria truncatella Marsham, 1802, monobasic. Isogenotypic with Laria by synonomy, Laria dulcamarae = Pria truncatella). This species also appears to be the unnamed type

upon which *Byturus* Latreille, 1796, was erected, but not one of the forms to which the name is now attached. Hence *Laria* is a genus of Nitidulidae.

(5) Pachymerus Thunberg, 1805, genotype Pachymerus bactris = Dermestes bactris Linnaeus, 1763, monobasic.

- (6) Caryoborus Schoenherr, 1833, genotype Bruchus (Caryoborus) serripes = Bruchus serripes Sturm, 1826, by original designation. This and the preceding are distinct tropical American genera without species in our area. Dermestes gleditsiae Linnaeus, 1763 = Bruchus arthriticus Fabricius, 1801, referred to Caryoborus by Schoenherr, 1833 and to Pachymerus by Pic, 1913, is the genotype of Caryobruchus Bridwell, 1929. Caryedon fuscus, of which Caryoborus gonagra (Fabricius) is a synonym, is a polyphagous species widely distributed in the Old World tropics. In West Africa a species of Caryedon is reported under other names as seriously injurious to the peanut (Arachis hypogaea) but is in all probability this species. Caryedon fuscus has in late years become established in Jamaica, Hispaniola, and Dutch Guiana and may be expected to become established in the United States.
- (7) Pseudopachymerus Pic, 1913, genotype Pseudopachymerus brasiliensis berg) = Bruchus brasiliensis Thunberg, 1816. Failing to trace Pachymerus to its source and to find its true genotype, Schoenherr, 1833, designated Bruchus brasiliensis Thunberg, 1816, as genotype of Pachymerus. This species is congeneric with Bruchus faldermanni Mannerheim. 1827, genotype of Caryedes Hummel, 1827, a tropical American genus without species in our area. Pedapholus Gistl, 1848, Naturg. Thierreichs X (new synonymy), Adromisus De Gozis, 1881, and Pseudopachymerus Pic, 1913, substitute names for Pachymerus Schoenherr not Thunberg having Bruchus brasiliensis Thunberg for genotype are synonyms of Caryedes. Bruchus (Pachymerus) crataegi Fahraeus, 1839, is a synonym of Bruchus mimus Say, which has now been referred to Gibbobruchus Pic, 1913. Sharp, 1885, Schilsky, 1905, and others have extended Schoenherr's misapplication of Pachy-

merus to include some species of Callosobruchus Pic. These have only a slight resemblance in body form of Schoenherr's pseudotype and have only family characters in common with the true Pachymerus as typified by bactris.

(8) Spermophagus Schoenherr, 1833, genotype Spermophagus titivilitius Boheman, 1833, by original designation. The species originally included in Spermophagus are referable to three well defined genera; Amblycerus Thunberg, 1815, Spermophagus reand Zabrotes Horn, stricted. Zacher, 1930, divided the genus into three genera, Spermophagus, Zabrotes, and Euspermophagus, the last proposed as new. The group to which he misapplied the name Spermophagus is Amblycerus, genotype Bruchus robiniae Fabricius, 1781. The type of Spermophagus, S. titivilitius, is, from the description, not congeneric with robiniae but with the genotype of Euspermophagus, which must therefore be suppressed as a synonym of Spermophagus if my conclusions are correct. Spermophagus titivilitius was described as from Mexico but the available evidence leads me to believe this an error and that the species is native to the Old World. The same conclusion has been reached for S. rufiventris Boheman described at the same time from the Crimea and from Brazil and compared with titivilitius. Both species were described as having the abdomen red which is common in Spermophagus while in Zabrotes the abdomen is always black. Hence Spermophagus appears to be the proper name for all Old World Amblycerinae excepting, perhaps, Pygospermophagus brevicornis Pic, 1917. This name is based upon a single male which may be a Spermophagus with exaggerated secondary sexual characters; the female, when discovered, may be a normal Spermophagus. Spermophagus has not been described sufficiently to distinguish it from Zabrotes which it resembles in its short, compact form, with the pygidium and last visible sternite unlike in the sexes and with the lateral carina of the pronotum complete; in both genera the eyes are deeply emarginate, the ventral surface of the hind tibia is flattened and definitely limited outwardly by a carina or a row of bristles; the scutellum is a small simple triangle; the short elytra barely cover the base of the pygidium; the calcaria of the hind tibia are short and subequal. From Zabrotes, Spermophagus differs in these four ways:

A. The tenth elytral stria is complete reaching both base and apex while in *Zabrotes* this stria is abbreviate at apex, not extending beyond the middle of the elytron.

B. In Spermophagus the flanks of the pronotum below the lateral carina are produced anteriorly into a vertical carina which hides the hind margin of the eye in repose; this structure is not present in Zabrotes.

C. In Spermophagus the intercoxal process of the prosternum, when seen from in front, is acuminate reaching nearly or quite to the apex of the coxa and has a vertical posterior face between the coxae reaching from their apices to the connecting membrane; this process in Zabrotes, when seen from in front, is a short triangle separating the coxae for only half of their length without a posterior vertical face.

D. The outer apical lamella of the hind femur is elevated, its apical angle rounded in Spermophagus while in Zabrotes this angle is acute. The great majority of species of Spermophagus are attached to species of Convolvulaceae, a few to Malvaceae (Hibiscus and Urena), host plants not known to

be affected by Amblycerus or Zabrotes. One African species affects a species of Cassia. Species of Spermophagus are found in England, in Sweden and eastward to Japan, south to New Caledonia, Australia, (Bruchus perpastus Lea, 1899, from Western Australia being a species of Spermophagus) and the Cape of Good Hope, but are in complete confusion, so that application of names is impossible without study of types. No species referable to Spermophagus as here restricted has been seen from any American locality.

- (9) Bruchidius Schilsky, 1905, as originally described is too polymorphic to remain undivided. Bruchidius quinqueguttatus (Olivier, 1795) is the designated genotype, Bridwell, 1932. No American bruchid seems congeneric with this species. Bruchus villosus Fabricius, 1792, has become established in Massachusetts and in Virginia. It was included by Shilsky in Bruchidius under the untenable name Bruchidius cisti (Paykull) and is the genotype of a new genus, Sparteus, above described.
- (10) Pachybruchus Pic, 1912. The genotype, Bruchus coryphae Olivier, 1795, designated by Bridwell, 1932, is congeneric with the genotype of Megacerus Fahraeus, 1833.

ZOOLOGY.—A new sea anemone from Woods Hole, Massachusetts.¹ Sears Crowell, Miami University, Oxford, Ohio, and Marine Biological Laboratory, Woods Hole, Mass. (Communicated by Waldo L. Schmitt.)

In 1939, Dr. William J. Bowen brought to me specimens of a small sea anemone taken from the Mill Pond, at Woods Hole. This anemone is noteworthy in several respects: (1) It belongs to a genus hitherto represented by only one species, and that from only one locality, the Isle of Wight in the English Channel. (2) It has evaded observation until recently, even though it is abundant at a location almost in the shadow of the Marine Biological Laboratory. (3) It possesses nematosomes. These are small clusters of cells that bear nematocysts and that move around freely in the coelenteron without permanent attachment to the body of the anemone. These nematosomes are being studied further, since no knowledge of their function or origin exists. (4) It is well

<sup>1</sup> Received December 20, 1945.

suited for study by students in general or invertebrate zoology, in that it is small, transparent, simple in structure, hardy, and available at almost all seasons. It has been used by the classes at the Marine Biological Laboratory and successfully shipped as far as Ohio, where it arrived in good condition.

## Genus Nematostella Stephenson, 1935

The genus Nematostella was established by Stephenson to include those Edwardsidae that could not be referred to Edwardsia because of the absence of nemathybomes and that could not be referred to Milne-Edwardsia because the outer tentacles are longer than the inner. From both of these genera it differs in the possession of nematosomes. The type species is Nematostella vectensis Stephenson, 1935.